

# Acceptance, Utilization and Factors Associated With Immediate Postpartum Intrauterine Contraceptive Device Among Mothers Delivered in Public Health Facilities of Hawassa City, Sidama Regional State, Ethiopia.

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## Research Article

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# Abstract

**Background:** Immediate Postpartum intra uterine contraceptive device (IPPIUCD) placement within 10minute after delivery is a safe and effective method when provided after comprehensive counseling. Studies on its acceptance and utilization are scarce in study area. This study aims to assess the acceptance and utilization of IPPIUCD.

**Methods:** A cross sectional study was conducted among mothers delivered in the public health facilities in Hawassa city administration. EPI-Data version 7.2 was used for data entry and STATA 14 for analysis. To measure association a binary logistic regression and multivariable logistic regression model were used. Statistical significance was determined at p value of 0.05 with 95% confidence interval.

**Result:** The mean ( $\pm$  SD) age of study participants was 25 years ( $\pm$ 4.5). Acceptance and utilization of immediate post-partum IUCD were 64(16.4%) & 39(10%) respectively. Counseling about IPPIUCD, Attitude, plan to have another child, and birth Interval were associated with acceptance of immediate PPIUCD while husband support for family planning use, delivery time and number of children had significant association with utilization of immediate PPIUCD.

**Conclusion:** The study found a relatively low proportion of acceptor and utilizer of immediate post-partum IUCD in the study area. To improve the acceptance and utilization of immediate PPIUCD among mothers, all stake holders concerned with family planning need to mitigate and promote the challenges and facilitating factors respectively.

## Plain English Summary

Immediate post-partum intra uterine contraceptive device (IPPIUCD) is a safe and effective family planning method to prevent unintended pregnancy for long time, by making mother protected immediately after delivery before she left the postnatal room. Since it was newly initiated program in Ethiopia, the proportion of mother's accepting and utilized IPPIUCD and what factors related with acceptance and utilization was not well known. Previous studies were either from sole facility data or focused on postnatal family planning in general. This study intended to assess acceptance, utilization and related factors about IPPIUCD in 398 women delivered in five public health facilities. The facilities ranging from health center to general and referral hospitals, providing immediate post-partum IUCD, free of charge without need of returning for family planning methods.

The proportion of women accepted and utilized IPPIUCD were very low. Receiving information about IPPIUCD through Counselling and favorable attitude about IUCD resulted in better acceptance of PPIUCD than not counselled and have unfavorable attitude. Additionally mothers with short birth interval, due to fear of early pregnancy and want to limit pregnancy due to having sufficient number of children were having better acceptance than their counter parties. More utilization was observed among women give birth in day time, have satisfied demand for child birth and have husband support.

To increase acceptance and utilization of IPPIUCD health professionals should provide counseling about IPPIUCD for all women including her husband. We have to consider family planning equally in day and night time service.

## Introduction

Globally 121 million unintended pregnancy occurred with annually rate of 64/1000 women(1). This rate is higher in sub Saharan Africa 99/1000 pregnancy and Ethiopia 100/1000 was unintended(2). Met demand for family planning is one of the indicators in measuring the attainment of sustainable development goal five and a strategy in reducing maternal, infant and child mortalities by reducing unintended pregnancy(3). Long acting reversible contraception and comprehensive contraceptive counseling increase accessibility and have high continuation rate with greater protection of unintended pregnancy(4, 5). Intra uterine devices (IUDs) are one of a long-acting reversible contraceptive (LARC) family planning method in which a couple uses it to limit or space the number of children they want to have through the use of contraceptive methods.

Immediate post-partum intrauterine contraceptive devices (IPPIUCD) placement within 10 minutes after expulsion of placenta up to 48 hours of delivery is a prevailing strategy that prevents unintended pregnancy, with high continuation rate (6). Placement of IPPIUCD is preferred because it does not interfere with breast feeding and also breastfeeding is associated with reduced need of IUD removal due to bleeding or pain(7, 8). A short birth interval will be alleviated by using IPPIUD placement (9). Women who may not return for the postpartum visit(10) and resume sex without using contraception(11) benefit from IPPIUCD. More than half mothers resume sexual intercourse before six weeks of postpartum(12, 13). This is due to low perception of risk of pregnancy (12).

Acceptance is important for the utilization of any effective method of family planning program. Acceptance and utilization of IPPIUD was higher for those mothers who have third trimester visits(14). Counseling is one of the tool to increase the acceptance of IPPIUCD(15). counseling about PPIUCD during antenatal care(ANC), spousal approval, having more than one child and short interval pregnancy favored the use of IPPIUCD(15). In Ethiopia despite several advantage and high effectiveness among the long acting reversible contraceptives and existing additional opportunity of increasing rate of institutional delivery for utilization of IPPIUCD, IUCD utilization remains still very low 2% (16, 17). There is limited study on acceptance, utilization and factors associated with it's in study area. This study aims in assess the acceptance, utilization and contributing factors of immediate post-partum IUCD.

## Method And Material

### Study design, period and setting

Facility based cross sectional study was conducted from January 1st up to February 31st of 2020 in Hawassa city which is a capital city for Sidama regional state and southern nation national people

regional (SNNPR), which is found 275 km south of Addis Ababa capital city of Ethiopia. In Ethiopia all family planning methods and counseling offered for free.

### **Study population,**

All postnatal mothers delivered in the PPIUCD providing public health facilities of Hawassa city during the study period.

## **Eligibility criteria**

Postnatal mothers delivered in the PPIUCD providing public health facilities of Hawassa city during the study period and reside for six month in Hawassa city were included. Mothers who are in poor health condition and unable to communicate properly were excluded.

## **Operational definition**

### **Immediate Postpartum intra uterine contraceptive device option:**

**Post placental insertion:** Insertion within 10 minutes after expulsion of the placenta following a vaginal delivery on the same delivery table

**Intra caesarean insertion:** Insertion that takes place during a caesarean delivery, after removal of the placenta and before closure of the uterine incision

**Within 48 hours after delivery:** Insertion within 48 hours of delivery and prior to discharge from the postpartum ward

**Acceptance of IPP IUCD:** woman's verbal consent to use IUCD within 10 min to 48 h of delivery of placenta after they counseled about PPIUCD.

**Utilization of IPPIUCD:** Women who accepted PPIUD as a method of family planning and had actual PPIUCD insertion after the post placental period or before they discharged from the health facilities.

**Knowledge:** knowledge related questions were measured by calculating the mean score of 8 items and classifying as good knowledge if the woman responded  $\geq 4$  correctly for knowledge question or poor knowledge if the woman responded  $< 4$  correctly for knowledge question.

**Attitude: There are 5 attitude** related questions classifying as positive attitude if the woman responded  $\geq 3$  attitude question correctly or negative attitude if the woman responded  $< 3$  for attitude question correctly.

## **Sample size calculation**

The sample size was determined using the formula of single population proportion by considering assumption  $p = (0.38)$  taking the acceptance of post-partum IUCD use among women who gave birth at

Sidama zone health facilities to be 38%(18), margin of error 5% and 95% confidence interval and 10% non-response. Accordingly, a total of 398 sample sizes were obtained.

## **Sampling procedure**

Data were collected from five health facilities that are providing IPPIUCD service in Hawassa city administration. The calculated minimum sample size were allotted by proportionate allocation based on one year delivery report, after calculating the average estimated monthly delivery in each health facilities. A sample of 169, 168, 17, 26 and 17 from Hawassa comprehensive referral hospital, Adare hospital, and Adare, Millennium and Alamura health centers respectively. By considering mothers come to health facility for delivery randomly, consecutive sampling method was used to get the study unit.

## **Data collection technique and quality**

A face to face interview was carried out by five midwifery nurses using pre tested structured questionnaire which is developed after reviewing different literatures(19, 20). Questionnaire was prepared in English and translated to Amharic by expert and back to English to check its consistence. Data was collected in postnatal room before discharge. During data collection every questionnaire was checked for completeness by supervisors.

## **Data analysis**

The Collected data was checked and entered into EPI-Data version 7.2 to check the validity of the data and it was exported to STATA 14 version 22 for cleaning and analysis. Frequency with percentage and mean with SD were used to organize and summarize the data.

To measure factors affecting acceptance and utilization of IPPIUD binary logistic regression model was used. Those variables with p-value < 0.25 at binary logistic regression level were included in multivariable logistic regression model. Hosmer–Lemeshow test was used to compare and rule out the goodness of fit of the models. Multicollinearity was examined for quantitative variables, and variance inflation factor (VIF) value < 10 was taken as a cut of point.

## **Result**

### **Socio demographic economic status of respondents**

A total of 392 post natal mothers were interviewed making 98.5% response rate. The mean age of respondents was 25 years with standard deviation of ( $\pm$  4.5). Majorities 382(97.9%) of the mothers were married. Half of the respondent were protestant 223(56.9%) followed by orthodox Christian 103(26.3%) religion. Half 211 (54%) of the mothers were housewife and 148(38%) of them were completed primary level, while 140(35.7%) of their husbands were completed college level and 120(30.5%) of them were private employee. (See table 1).

### **Reproductive related history**

One hundred eighty four 184(46.9%) mothers have one to two children before this delivery and 150(38.3%) have no child or this delivery may be the beginning of child Bering. For those who have birth experience N= 238 almost half 119(30.4) mothers have more than three years birth interval. Nearly half of the respondents have a desire to have four children in the future and 237(67.7%) were have a birth plan after three years. Of all mothers who have experienced delivery 170 (72.6%) and 119(51.1) have resume sexual and menstrual cycle after 45 days of delivery respectively (Table 2).

**Table 1:** Socio demographic and economic characteristics of mothers in Hawassa, Sidama Regional State, Ethiopia, 2020

<b>Characterstics</b>	<b>Categories</b>	<b>Number</b>	<b>Percent</b>
Age	< 20	76	19.4
	20 – 25	142	36.2
	26 – 30	135	34.4
	>30	39	9.9
Marital status	Married	384	97.96
	Single	8	2.04
Religion	Protestant	223	57.33
	Orthodox	103	26.48
	Muslim	58	14.91
	Catholic	5	1.29
Educational status	Secondary and below	289	73.91
	Collegeand above	102	26.1
Occupational status	Housewife	211	53.83
	Others	181	46.17
Average monthly income	0-36000	163	41,58
	36001-60000	100	25.51
	>60001	129	32.91
Educational statusof husband	Noformal education	24	6.12
	Primary	102	26.02
	Secondary	117	29.85
	College and above	141	64.03
	Not applicable	8	2.04
Occupational statusof Husband	Merchant	111	28.32
	Governmental/Empl	105	26.79
	Privet Employee	119	30.36
	Others	49	12.05
	Not applicable	8	2.04

## Health service utilization condition of respondents

Three hundred seventy seven 96.2% of mothers have antenatal care follow up. Of the total who received ANC 198 (52.5%) received fourth visit, regarding mode of delivery most 259(66.1%) were delivered spontaneous vaginal delivery. Only 41(10%) of the deliveries were unplanned (table: 3).

## Family planning history

From a total 242(61.7%) receiver family planning counseling in current pregnancy and most of mothers 160(66%) counseled during antenatal care (ANC). Most of 264(67.7%) women were used family planning any time in the past, of them majorities 254(96.2%) women were used prior to the current pregnancy. Two hundred one (58%) and 234(60.9%) of mothers were decide about modern contraception use with their husbands and get support, respectively. (See table 4).

## Knowledge and attitude status of respondents about IUCD

Majorities of mothers 293 (74.74%) have poor knowledge about intrauterine contraceptive .and 320(81.6%) of them have negative attitude towards the use of intrauterine contraceptive.(Fig. 2)

## Acceptance and utilization of immediate post-partum uterine contraceptive device

Of all only 64(16.4%) 95% CI = {12.8%, 20.2%} and 39(9.95%) 95% CI = {7.1%, 13%} women were accepted and actually utilized Immediate postpartum IUCD as a family planning method, respectively. Those declared to accept IPPIUCD as a family planning method 119(36.62%) were due to preference of other family planning method.( Fig. 3&4)

## Reasons for rejecting immediate postpartum IUCD

According to the results of this study, the main reason cited for rejecting immediate postpartum IUCD was preference of other FP method 118 (36%) followed by lack of counseling 108 (32.9) while 19 (5.8%) of women have no reason (Fig. 4).

**Table 2:** Reproductive health characteristics of mothers who gives birth in Hawassa city, Sidama Regional State, Ethiopia, 2020

<b>Characterstics</b>	<b>Number</b>	<b>Percent</b>
<b>Gestational Age</b>		
Term	362	92.3
Preterm	23	5.9
Post term	7	1.8
<b>Number of children you have</b>		
No child	150	38.3
1-2 children	184	46.9
3-4 children	52	13.3
Above 5 children	4	1
<b>Birth interval</b>		
Below 24 months	173	44.1
24-36 months	100	25.5
Above36 months	119	30.4
<b>Birth plan to other children</b>		
Yes	347	88.5
No	45	11.5
<b>Future number of children</b>		
Below 4 children	88	24.2
4 children	179	49.3
Above 4 children	96	26.4
<b>Future time to give birth</b>		
Below 24 month	10	2.9
24-36 months	103	29.4
Above 36 month	237	67.7
<b>Sexual Resume in previous delivery</b>		
Before 45 days	47	20.1
After 45 days	170	72.6
After 6 months	17	7.3

Characterstics	Number	Percent
<b>Menstrual Resume</b>		
Before 45 days	34	14.6
After 45 days	119	51.1
After 6 month	80	34.3

**Table 3:** Health service utilization among mothers in Hawassa city, Sidama Regional State, Ethiopia, 2020

Characteristics	Number	Percent
<b>ANC follow up</b>		
YES	377	96.2
NO	15	3.8
<b>Number of ANC follow up reported n= 377</b>		
1-2 times	47	12.5
Three times	132	35.0
four and above	198	52.5
<b>Mode of delivery</b>		
SVD	259	66.1
Instrumental	36	9.2
C/S	97	24.7
<b>Current delivery</b>		
Planed	350	89.5
Not planed	41	10.5

**Table 4:** Family planning related history among mothers in Hawassa city administration, Sidama Regional State, Ethiopia, 2020

<b>Variable</b>	<b>Frequency</b>	<b>Percent</b>
<b>F/ p counseling current pregnancy</b>		
Yes	242	61.7
No	150	38.3
<b>Time of counseling</b>		
ANC	160	66.1
Delivery	16	6.6
Postnatal	68	27.3
<b>Past use of F/P</b>		
Yes	264	67.7
No	126	32.3
<b>Use F/P Before current pregnancy</b>		
Yes	254	96.2
No	10	3.8
<b>Method used in the past</b>		
Implant	102	40.1
IUCD	23	9.1
Pills	27	10.6
Condom	3	1.2
Injectable	99	39.0
<b>Decision for modern contraception</b>		
Me and my Husband	201	58.1
Me	87	25.1
Husband	49	14.2
Health extension worker/ health workers	9	2.6
<b>Husband support on modern contraception</b>		
Yes	234	60.9
No	150	39.1

# Factors associated with Acceptance and utilization of immediate post-partum IUCD

In this study birth interval, plan to have another child, counseling about IPPIUCD and attitude towards IUCD had significant association with acceptance of immediate post-partum IUCD. Mothers having less than two years of birth interval increase the odds of acceptance for IPPIUCD by 2.7 times compared with mothers having three and above years of interval (AOR = 2.71; 95% CI (1.09, 6.72)). Mothers with plan to have another child were three times likely to accept IPPIUCD (AOR= 3.32; 95% CI (1.45, 7.59)) than mothers who do not have plan. Mothers counseled about IPPIUCD 3.79 times more likely accepted IPPIUCD (AOR = 3.79; 95% CI (1.67, 8.55)) compared to their counterpart. Mothers having favorable attitude towards IUCD were six times more likely to accept IPPIUCD (AOR=6.43; 95% CI (3.26, 12.68)) than mothers had unfavorable attitude (Table 5)

**Table 5:** Bivariable and Multivariable analysis of acceptance of IPPIUCD in Hawassa city, Sidama Regional State, Ethiopia, 2020

Variables	Acceptance		COR (95%CI)	AOR (95%CI)
	Yes	No		
<b>Age (year)</b>				
<20	7	69	1	1
20-25	15	127	1.16 (0.45, 2.99)	1.02 (0.36, 2.91)
26-30	32	103	3.06 (1.27, 7.33)	2.00 (0.71, 5.66)
>30	10	29	3.39 (1.17, 9.79)	2.38 (0.66, 8.54)
<b>Birth Interval</b>				
Below 24 month	21	152	0.72 (0.37, 1.42)	2.71 (1.09, 6.72)*
24 - 36 month	24	76	1.66 (0.84, 3.25)	1.86 (0.85, 4.08)
Above 36 month	19	100	1	1
<b>Use of FP in the past</b>				
Yes	53	212	2.63 (1.32, 5.24)	2.00 (0.83, 4.83)
No	11	116	1	1
<b>Plan to have another child</b>				
Yes	50	297	1	1
No	14	31	2.68(1.33, 5.39)	3.32 (1.45, 7.59)*
<b>Ever Heard of IUCD</b>				
Yes	60	252	4.46 (1.57, 12.68)	2.30 (0.75, 7.04)
No	4	75	1	1
<b>Attitude</b>				
Favorable	31	39	6.96 (3.84, 12.60)	6.43 (3.26, 12.68)*
Unfavorable	33	289	1	1
<b>Counseling about IPPIUCD</b>				
Yes	55	186	4.66 (2.23, 9.75)	3.79 (1.67, 8.55)*
No	9	142	1	1
NB: COR: Crude odd ratio; AOR: Adjusted odd ratio; CI: Confidence interval; 1: Reference				
*Remained significant at P-Value <0.05.				

In this study husband support for family planning use, delivery time and number children had significant association with utilization of IPPIUCD. Mothers who had husband support for family planning were 3.28 times more likely to utilize IPPIUCD (AOR = 3.28; 95% CI (1.28, 8.41) than their counterpart. Having delivery during the day time increases the odds of utilizing IPPIUCD by 2.25 times (AOR = 2.25; 95% CI (1.06, 4.80) compared with mothers delivered during night time. Mothers who have more than three and above children 4 times more likely to utilize IPPIUCD (AOR = 4.47; 95% CI (1.43, 13.91) than those mothers with no child prior to this birth (Table 6).

**Table 6:** Bivariable and Multivariable analysis of Utilization of IPPIUCD in Hawassa city administration, Sidama Regional State, Ethiopia, 2020

Variables	Utilization		COR (95%CI)	AOR (95%CI)
	Yes	No		
<b>Educational status</b>				
Secondary and below	32	258	1	1
College and above	7	95	0.59 (0.25, 1.39)	0.80 (0.31, 2.05)
<b>Residence</b>				
Urban	34	330	0.47 (0.16, 1.32)	1.08 (0.25, 4.60)
Rural	5	23	1	1
<b>Number of children</b>				
No child	10	140	1	1
1 – 2	18	168	1.50 (0.67, 3.35)	1.88 (0.72, 4.90)
> = 3	11	45	3.42 (1.36, 8.58)	4.47 (1.43, 13.91)*
<b>Number of ANC follow up</b>				
1-2 times	5	6	1	1
Three times	19	36	1.41 (0.49, 4.02)	1.16 (0.35, 3.89)
four and above	11	113	0.49 (0.16, 1.49)	0.30 (0.08, 1.13)
<b>Plan to have another child</b>				
Yes	30	317	2.64 (1.16, 6.00)	0.87 (0.27, 2.77)
No	9	36	1	1
<b>Husband Support</b>				
Yes	28	206	2.41 (1.06, 5.44)	3.28 (1.28, 8.41)*
No	8	142	1	1
<b>Time of delivery</b>				
Day	22	136	2.06 (1.05, 4.02)	2.25 (1.06, 4.80)*
Night	17	217	1	1
NB: COR: Crude odd ratio; AOR: Adjusted odd ratio; CI: Confidence interval; 1: Reference; *Remained significant at P-Value <0.05.				

## Discussion

Immediate postpartum IUCD use is an important approach to avoid unintended pregnancy and improve birth spacing. Hence, this study was aimed to assess acceptance, utilization and factors associated with immediate postpartum intrauterine contraceptive device among mothers delivered in public health facilities of Hawassa city.

In this study acceptance of immediate post-partum IUCD was 16.4%. This result is in line with previous studies conducted in Kenya(21) and Bale zone, Ethiopia(19) which reports 12%, and 12.4%, respectively. It was also lower than studies done in India (22), Egypt (23), Ruwanda, Gamo zone (24, 25) and Sidama zone (18) that reported acceptance rate of 36%, 28.9%, 67.8%, (35.6%, 36%), and 38.1%, respectively. However, this finding is higher than that was reported at India(26) which was 8.6% of acceptance rate. The difference may be due to difference in study period, sample size, study setting, training of health professional, and health system policies.

After controlling all other variables constant counseling about IPPIUCD, Attitude, plan to have another child, and birth Interval remained significant.

The odd of accepting IPPIUD was 3.79 times higher among mothers counseled about IPPIUCD as compared to their counterpart. This association also evidenced in the study done in four contries (India, Nepal, Sri Lanka, and Tanzania )(15), Indonesia (27), India (28) and Ethiopia(25) which reported that mothers who had counseled were more likely to accept immediate PPIUD than mothers wo did not receive counseling. The possible reason might be counseling may increase knowledge about PPIUCD and improve their decision making power of mothers. A supporting evidence also shown by a study conducted in Pakistan(29) which reports significantly higher rate of acceptance among women having awareness of PPIUCD as compared to women who had no previous knowledge of PPIUCD. It could be also explained during counseling, health care providers may clarify misconceptions about PPIUCD and motivate the women for accepting PPIUCD immediately after delivery.

The present study indicated that mothers having favorable attitude were at six times more likely to accept IPPIUCD compared with mothers having unfavorable attitude. This goes with the previous result from Nepal(30) and Ethiopia(31) which reports supportive attitude as predictors of acceptability of IUCD. This might be due to having favorable attitude may shape mothers intention of postpartum IUCD willingness.

This study also showed that mothers having birth interval of below 24 months increase the odds of accepting immediate PPIUCD by 2.7 when compared with mothers having birth interval of above 36 months. This association was agreed with previous studies conducted in Pakistan(29) and Tanzania (32) which indicated that, having less than 2 years of duration since last delivery increases the odds of acceptance of post-partum IUCD. Additionally, this finding is supported by a study conducted in Ruwanda(4, 24) that reports, fear of having an early or unwanted pregnancy was a reason for acceptance of immediate PPIUCD in 79% of respondents. This could be due to the fact that mothers who had a short birth interval might require a long acting and reliable method of contraception to attain optimal birth spacing and nurturing their children. According to this finding, it is better to give due attention to a mother with short birth interval (below 24 months).

Furthermore, the result of this study demonstrated that mothers who do not have a plan to have another child were three times more likely to accept immediate PPIUD than mothers who had a plan to have another child. This finding is supported by a study conducted in Sidama zone(18) which showed increased use of immediate PPIUCD in mothers who do not have a plan to have another child than mothers who had a plan to have another child. The possible reason might be due to a mother without a plan to have additional children might have enough number of children, need for enough time to recover from the physical stress of one pregnancy before moving on to the next and gives enough time for lactation, that initiated her to accept safe and effective long acting immediate PPIUCD.

In our study, only 39 (10%) actually utilized Immediate postpartum IUCD as a family planning method. This finding was comparable with previous studies conducted in Chambele, USA(4), India(33), and Dila town(34) that reported utilization level of 11.7%, 9.1%, and 8.2%, respectively. But, this finding was found to be as low as related to reports evidenced in Ruwanda (4), 28.1%, and several parts of Ethiopia (21%, 41.6%, 22, 26.6%, 8, 21.9%). Similarly, it was also lower compared with studies conducted in China(35), Ruwanda(36), and Gamo zone, Ethiopia(25) that reports 14.9%, 15%, and 14%, respectively. On the other hand, this result was higher than the utilization reported in Kenya(21), Debretabor, Ethiopia(37), and Gojam, Ethiopia(38) which evidenced utilization of IPPIUCD of 5.1%, 1.65%, and 4.02%, respectively. The possible explanation for this discrepancy is variation in integration of family planning with maternal and child-care services, geographic, socio-demographic and reproductive characteristics.

In this study, husband support for family planning use, delivery time and number children were significantly associated with utilization of immediate PPIUCD.

This study indicated that a significant difference in immediate PPIUCD utilization among mothers with different number of children. Mothers having greater than 3 children were 4.5 times more likely to utilize immediate PPIUCD than their counterparts. This association was consistent with a study conducted in China(35), Nigeria(39), Ruwanda- (4, 21) and other part of Ethiopia(34, 40, 41). The possible justification might be that mothers who have a large number of children may be inspired to prevent additional pregnancy to limit their family size.

Husband Support is another variable that revealed significant associated with immediate PPIUCD. In this study, having Husband Support resulted in increase the odds of IPPIUCD utilization by 3.28 times compared to mothers lacking husband support. This evidence is comparable with previous studies done in Ruwanda (42), Addis abbaba(43–45), Gamo zone (46). This shows that involving husband in reproductive health service is essential to increase utilization of immediate PPIUCD.

In the same way, this study indicated that mothers who delivered during day time were 2.25 times more likely to utilize immediate PPIUCD than who delivered during night time. Though, there is no study with similar report to support this association, the possible reason could be those mothers who delivered during the day time might get family planning service before discharging. Additionally, during day time health care providers will be more active than night time so that, they may counsel and provide IPPIUCD

in the day time, and also the proportion of health care providers and laboring mothers during night may be missmunched.

Finally, since this study has used a cross-sectional design, it cannot measure the temporal relationship between exposure and outcome. Moreover, since the study was conducted in a public health facilities, the findings may not adequately reflect the entire population in the city.

## **Conclusion**

We found low acceptability and utilization of immediate PPIUCD. Counseling about IPPIUCD, Attitude, plan to have another child, and birth Interval were associated with acceptance of immediate PPIUCD while husband support for family planning use, delivery time and number children had significant association with utilization of immediate PPIUCD.

Low level of acceptability and utilization of immediate PPIUCD can be overcome by proper counselling and public awareness programs. As a result the government needs to develop strategies to increase public awareness of the PPIUCD through different media sources.

## **Declarations**

### **Ethical considerations**

Ethical approval was taken from Institutional Review Board of Hawassa University. Hawassa city administration health office has given a written permission letter for each health facilities. Verbal informed consent was obtained from study participant. Information obtained from each study participant was kept confidential.

### **Availability of data and materials**

Data is not available for online access, however readers who wish to gain access to the data can write to the corresponding author Yemisrach Shiferaw at [yemisrachshiferaw@yahoo.com](mailto:yemisrachshiferaw@yahoo.com).

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### **Consent to publish**

Not applicable.

### **Competing interests**

The authors declare that they have no competing interests.

### **Author Contributions**

YS, MJ: Designed the research study, participated in the analysis of data and finalized the write up of the paper. SF, BE: Conceived the idea, developed the proposal and drafted the write up of the paper. AAA, AG: critically reviewing the article, interpreting of findings and prepared the manuscript. All authors read and approved the final manuscript and agree to be accountable for all aspects of the work.

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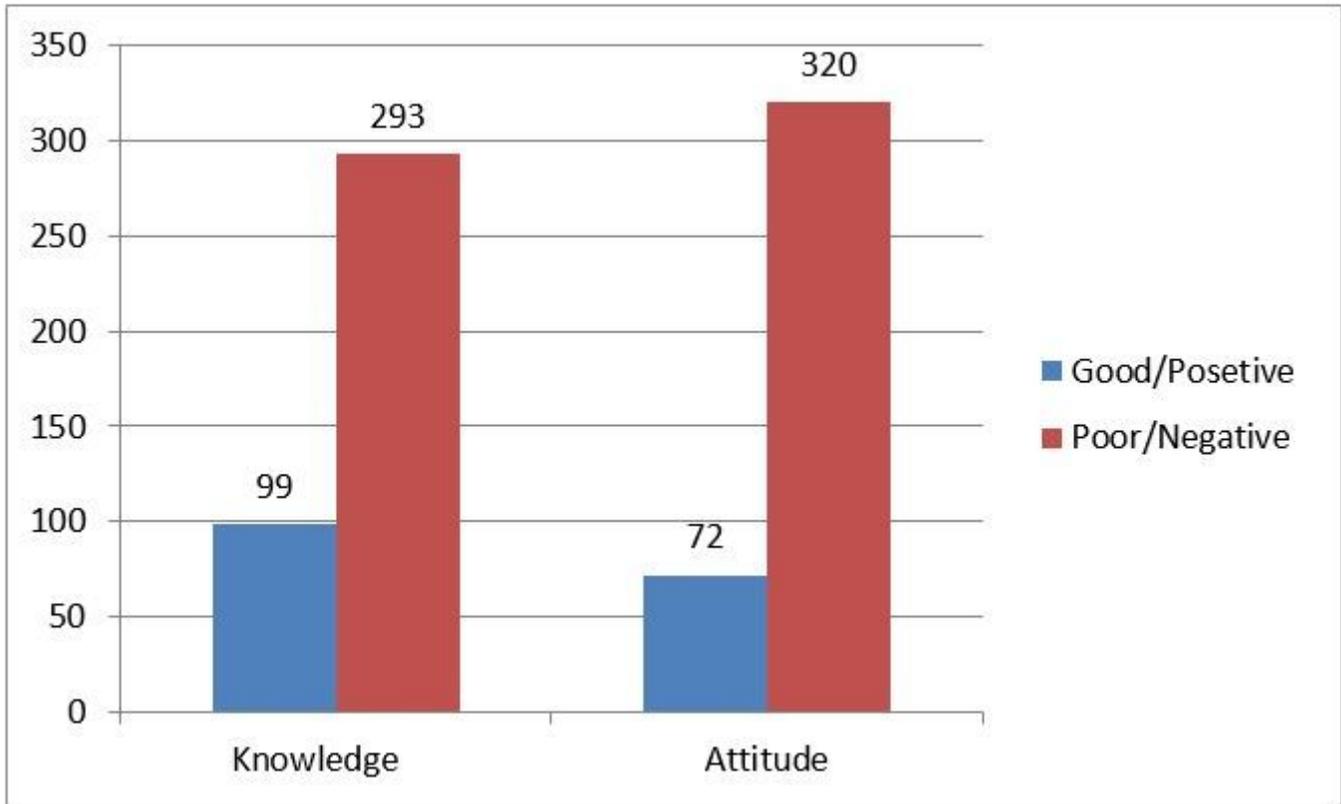
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## Figures



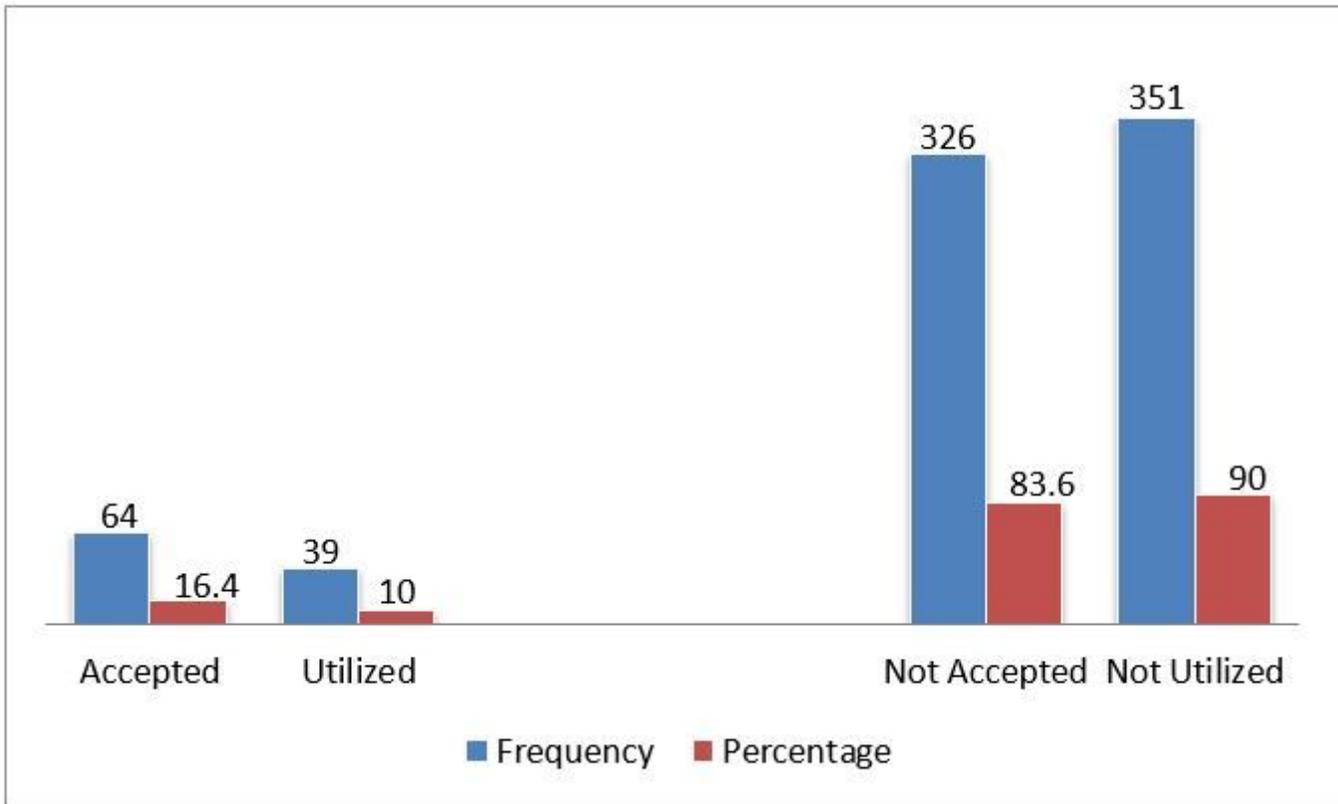
**Figure 1**

knowledge and Attitude towards IUCD among mothers in Hawassa city, Sidama Regional State, Ethiopia, 2020.

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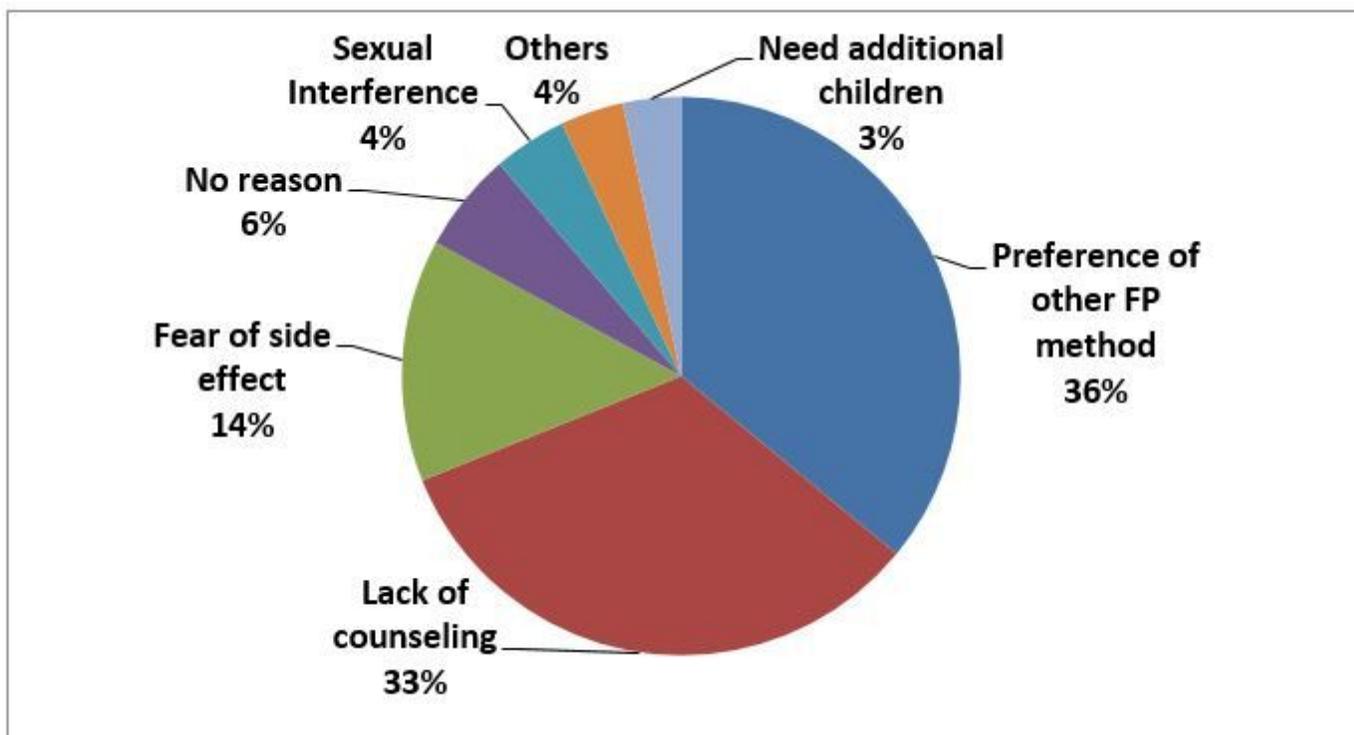
**Figure 2**

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**Figure 3**

Acceptance and Utilization of IPPIUCD among mothers in Hawassa city, Sidama Regional State, Ethiopia, 2020



## Figure 4

Reason for rejecting IPPIUCD among mothers in Hawassa city, Sidama Regional State, Ethiopia, 2020

NB: Other; menstrual disturbance, husband refusal, No access